

Reply to Office Action dated December 17, 2004

### REMARKS

Claims 1-9, 11-20, 22-35 and 37 are pending in this application. By this Amendment, claims 10, 21 and 36 are canceled without prejudice or disclaimer, and the specification and claims 1, 18, 20, 22, 27-28 and 37 are amended. Various amendments are made for clarity and are unrelated to issues of patentability.

Applicant gratefully acknowledges the Office Action's indication that claims 4-7, 14-15, 21-22, 24-25 and 31-34 contain allowable subject matter.

The Office Action objects to claim 20 because of informalities and rejects claim 27 under 35 U.S.C. §112, second paragraph. It is respectfully submitted that the above amendments obviate the grounds for objection and rejection. Withdrawal of the objection and rejection is respectfully requested.

The Office Action rejects claims 1-3, 8-13, 16-20, 23, 26, 28-30 and 35-37 under 35 U.S.C. §103(a) over U.S. Patent 6,798,843 to Wright. The Office Action rejects claim 27 under 35 U.S.C. §103(a) over Wright in view of U.S. Patent 4,875,045 to Lynch. The rejections are respectfully traversed.

Independent claim 1 recites a predistorter coupled to receive an input signal and a control signal to generate a predistorted signal, a feedback unit and an adaptation processing unit coupled to receive the baseband signal and a delayed digital input signal to generate the control signal. Independent claim 1 further recites that the adaptation processing unit includes a delay unit to delay the input signal for a prescribed period of time and a digital signal processor coupled to receive the delayed input signal and the baseband signal from the feedback unit to generate the control signal.

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Wright does not teach or suggest all the features of independent claim 1. More specifically, the Office Action appears to assert that Wright discloses generation of a control signal at col. 9, lines 27-34. However, Wright's col. 9, lines 27-34 relates to compensation parameters that are determined in an off-line mode using previously captured samples. Furthermore, with respect to dependent claim 10, the Office Action also relies on this same section. However, as clearly set forth in col. 9, lines 15-22, the ACPCE 70 receives samples along an observation path 82 and a feedback path 84. The observation path 82 provides the input signal  $V_m(t)$  and a feedback path 84 provides samples of the amplifier's output. The ACPCE 70 uses these samples to compute compensation parameters that are provided to the DCSP 52 along an update and control path 86. That is, the ACPCE 70 uses previously computed compensation parameters in order to provide the signals along the path 86. These features clearly do not teach or suggest an adaptation processing unit that includes a delay unit to delay the input signal for a prescribed period of time and a digital signal processor coupled to receive the delayed input signal and the baseband signal from the feedback unit to generate the control signal. There is no suggestion of a delay unit to delay signal  $V_m(t)$  for a prescribed period of time. Accordingly, independent claim 1 defines patentable subject matter.

By this Amendment, independent claim 18 is also amended to include features similar to previous allowable dependent claim 21. Wright does not teach or suggest these features. Thus, independent claim 18 defines patentable subject matter.

Independent claim 23 recites a gain control circuit to receive and control a level of a digital input signal according to a gain control signal in combination with a delay circuit coupled to delay the digital input signal for a prescribed period of time and a digital signal processor

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coupled to receive the output signal of the analog-digital converter and an output of the delay circuit to generate the gain control signal and the control signal.

For at least similar reasons as set forth above, Wright does not teach or suggest the delay circuit recited in independent claim 23. Furthermore, Wright also does not teach or suggest the gain control circuit or a digital signal processor to generate a gain control signal and a control signal. That is, the Office Action appears to cite Wright's Figure 12 (when rejecting dependent claim 11 relating to a gain control signal) in order to find features of the claimed gain control circuit. However, Wright's Figure 12 relates to gain and power curves of RF amplifiers. The Office Action also appears to cite Wright's Figure 51 (element 130). However, the fast AGC component 130 does not receive and control a level of a digital input signal according to a gain control signal in combination with a predistorter to predistort the gain controlled digital input signal. Wright's DCSP 52 does not receive an output from fast automatic gain controller 130. Therefore, Wright does not teach or suggest a gain control circuit to receive and control a level of a digital input signal according to a gain control signal in combination with the other claimed features. Furthermore, the Office Action appears to reference Wright's Figures 1 and 12 to show features relating to a digital signal processor. However, these figures or their corresponding descriptions do not teach or suggest a digital processor to generate a gain control signal and a control signal. Thus, independent claim 23 defines patentable subject matter at least for this reason.

Additionally, independent claim 27 recites determining an output level of a high power amplifier using a feedback digital output signal, computing a gain control signal for gain control by using the determined output level, a desired output level, and a level of a digital input signal

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delayed for a prescribed period of time, multiplying the current digital input signal by the gain control signal to control the level of the digital input signal, and maintaining a sign bit of a multiplication resulting value, taking remaining lower bits as a predetermined number of bits, and adjusting digits of the digital input signal before and after multiplication. For at least similar reasons as set forth above, Wright does not teach or suggest computing a gain control signal as recited in independent claim 27. The Office Action also broadly relies on Lynch to show features relating to maintaining a sign bit. However, Wright and Lynch, even if combined, still do not teach or suggest maintaining a sign bit of a multiplication resulting value, taking remaining lower bits as a predetermined number of bits, and adjusting digits of the digital input signal before and after multiplication. Thus independent claim 27 defines patentable subject matter.

Independent claim 28 recites a gain control circuit to receive first and second digital input signals and control a gain of the first and second digital input signals according to a gain control signal, and output first and second gain control digital signals. Independent claim 28 also recites a digital predistorter coupled to receive the first and second gain controlled digital input signal. For at least similar reasons as set forth above, Wright does not teach or suggest all these features of independent claim 28. Thus, independent claim 28 defines patentable subject matter.

For at least the reasons set forth above, each of independent claims 1, 18, 23, 27 and 28 define patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims also recite features that further and independently distinguish over the applied references.

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### **CONCLUSION**

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-9, 11-20, 22-35 and 37 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **David C. Oren**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
FLESHNER & KIM, LLP



Daniel Y.J. Kim  
Registration No. 36,186  
David C. Oren  
Registration No. 38,694

P.O. Box 221200  
Chantilly, Virginia 20153-1200  
(703) 766-3701 DYK:DCO/kah

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**Please direct all correspondence to Customer Number 34610**